

utilized in the user computer (S04).

Detailed Description Text (40):

In a case whether the utilizing request processing unit 210 of the accounting server 200 has the functional structure as described above, the process for the contents utilizing management is executed in accordance with a procedure as shown in FIG. 10. Referring to FIG. 10, to utilize contents in a user computer, the user computer transmits a contents ID identifying contents and a utilizing request to the accounting server 200 (S01). The accounting server 200 which receives the utilizing request checks the utilizing condition of the contents referring to the utilizing request (S21) and determines whether the contents can be utilized (S22), in the same manner as in the case shown in FIG. 8. If the contents can not be utilized, the information of the denial is transmitted from the LAN unit 18 to the user computer.

Detailed Description Text (42):

After the deciphering key is ciphered, the LAN unit 18 transmits, based on instructions of the CPU 10, the deciphering key which has been ciphered and information of the utilizing permission to the user computer from which the utilizing request has been received (S27).

Detailed Description Text (43):

The user computer receives a response (utilizing permission/utilizing nonpermission) to the utilizing request (S02). The user computer then determines whether the response is the utilizing permission or the utilizing nonpermission (S03). If the contents are not permitted to be utilized (the utilizing denial of permission), the message for the utilizing denial of permission is displayed on the display unit of the user computer. The contents can not be utilized in the user computer. On the other hand, if the contents are permitted to be utilized (the utilizing permission), the ciphered key received from the accounting server 200 is deciphered using the key peculiar to the user computer. The contents which have been supplied to the user computer are deciphered using the deciphered key (S04). After this, the deciphered contents (an application) are utilized in the user computer (S05).

Detailed Description Text (52):

The plurality of decipher processing units 213(1), 213(2), . . . and 213(m) are connected to the process queue unit 260 in parallel. An ID of the contents referring to the utilizing request is supplied from the process queue unit 260 to the account processing unit 212. It is determined, based on the utilizing condition of the contents, whether the contents can be utilized (the utilizing permission/utilizing nonpermission). If it is determined that the contents can be utilized, the ciphered contents referring to the utilizing request are supplied to one of the plurality of decipher processing units 213(i) (i=1, 2 . . . ,m). A key used to decipher the ciphered contents is supplied to a decipher processing unit to which the ciphered contents are supplied. As a result, the ciphered contents are deciphered using the key.

Detailed Description Text (68):

According to the process described above, after the receiving of the utilizing request is suspended, processes for the remaining utilizing requests in the process queue unit 260 are completed. After this, the process for resetting the utilizing condition is performed in response to the request from the manager. Thus, a user computer which has transmitted a utilizing request to the accounting server 200 before the receiving of the utilizing request is suspended can normally receive a response (the utilizing permission or the utilizing nonpermission) to the utilizing request from the accounting server 200.

CLAIMS:

1. A contents utilizing management apparatus, comprising:

utilizing condition storing means for storing a utilizing condition corresponding to a sum of money of purchased authorization for use of the contents, wherein the utilizing condition stored in said utilizing condition storing means comprises an accumulative time of utilization for the contents;

a determination means, coupled to a plurality of computers in which the contents are utilized, for determining whether the contents can be utilized based on the utilizing condition of the contents referred to by a utilizing request supplied from one of said plurality of computers;

utilizing permission means for supplying permission to utilize the contents to the one of said plurality of computers when said determination means determines that the contents can be utilized; and

updating means for updating the accumulative time of utilization so that an amount of utilization of the contents is subtracted from the accumulative time of utilization for the contents when said determination means determines that the contents can be utilized,

wherein the updated accumulative time of utilization is used to determine, in response to a next utilizing request for the contents, whether the contents can be utilized.

2. The contents utilizing management apparatus as claimed in claim 1, wherein said utilizing permission means has deciphering means for deciphering ciphered contents referred to by the utilizing request, the deciphered contents being supplied as the permission to utilize the contents to the one of said plurality of computers in response to the utilizing request.

4. The contents utilizing management apparatus as claimed in claim 1, wherein said utilizing permission means has means for supplying the permission to utilize the contents, and a key used to decipher the ciphered contents referred to by the utilizing request, to the one of said plurality of computers.

9. The software license protection apparatus as claimed in claim 1, wherein said utilizing permission unit means includes a deciphering unit to decipher ciphered contents referred to by the utilizing request, the deciphered contents being supplied as the permission to utilize the contents to the one of said plurality of computers in response to the utilizing request.

10. A contents utilizing system, comprising:

a plurality of computers in which contents are utilized; and

a contents utilizing management apparatus, connected to said plurality of computers by a local network and connected to a central computer by a predetermined network, for managing utilization of the contents in each of said plurality of computers based on a utilizing condition corresponding to a sum of money of purchased authorization of the contents, said utilizing condition supplied from said central computer, said contents utilizing management apparatus comprising:

utilizing condition storing means for storing the utilizing condition corresponding to the sum of money of the purchased authorization of the contents, wherein the utilizing condition stored in the utilizing condition storing means of said contents utilizing management apparatus comprises an accumulative time of utilization for the contents;

determination means, coupled to said plurality of computers in which the contents

are utilized, for determining, based on the utilizing condition of the contents referred to by a utilizing request supplied from one of said plurality of computers, whether the contents can be utilized;

utilizing permission means for supplying permission to utilize the contents to the one of said plurality of computers when said determination means determines that the contents can be utilized; and

updating means for updating the amount of accumulative time of utilization such that an amount of utilization of the contents is subtracted from the amount of accumulative time of utilization for the contents when said determination means determines that the contents can be utilized,

wherein the updated amount of accumulative time of utilization is used to determine, in response to a next utilizing request for the contents, whether the contents can be utilized.

11. The contents utilizing system as claimed in claim 10, wherein said utilizing permission means of said contents utilizing management apparatus has deciphering means for deciphering ciphered contents referred to by the utilizing request, the deciphered contents being supplied as the permission to utilize the contents to the one of said plurality of computers in response to the utilizing request.

13. The contents utilizing system as claimed in claim 10, wherein said utilizing permission means of said contents utilizing management apparatus has means for supplying the permission to utilize the contents and a key used to decipher the ciphered contents referred to by the utilizing request, to the one of said plurality of computers.

18. A software license protection apparatus, comprising:

a storage unit to store a utilizing condition corresponding to a sum of money of purchased authorization for use of contents, wherein the utilizing condition stored in said storage unit comprises an accumulative time of utilization for the contents;

a determination unit coupled to a plurality of computers in which the contents are utilized, to determine, based on the utilizing condition of the contents referred to by a utilizing request supplied from one of said plurality of computers, whether the contents can be utilized;

a permission unit to supply permission to utilize the contents to the one of said plurality of computers when said determination unit determines that the contents can be utilized; and

an update unit to update the accumulative time of utilization so that an amount of utilization of the contents is subtracted from the accumulative time of utilization for the contents when said determination unit determines that the contents can be utilized,

wherein the updated accumulative time of utilization is used to determine, in response to a next utilizing request for the contents, whether the contents can be utilized.

20. A software license protection apparatus, comprising:

a storage unit storing a utilizing condition, the utilizing condition comprising an available usage time for utilization of a content;

a determination unit, coupled to a plurality of computers in which the content is

utilized, determining whether the content can be utilized based on a utilizing condition;

a permission unit supplying permission to utilize the content to one of the plurality of computers when the determination unit determines that the content can be utilized; and

an update unit updating the available usage time for utilization so that an amount of utilization of the content is subtracted from the available usage time for utilization of the content when said determination unit determines that the content can be utilized, wherein the updated available usage time for utilization is used to determine whether the content can be utilized in response to a next utilizing request for the content.

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L13: Entry 28 of 38

File: USPT

Apr 4, 2000

DOCUMENT-IDENTIFIER: US 6047051 A

TITLE: Implementation of charging in a telecommunications system

Abstract Text (1):

The invention concerns a method for the implementation of charging in a telecommunications system including customer terminals used by customers for ordering services and servers for providing services to customers. In order to implement the charging of services easily especially in a multimedia environment, at least one separate billing server is used in the network so that each customer terminal has a dedicated billing server. A contract message is sent to the customer terminal stating that the customer must make a contract on the selected service, and the customer's acceptance of the contract is sent from the customer terminal to the billing server in the network. The billing servers of the network are used for transferring charging records to the billing system so that the transfer of the charging record(s) concerning the selected service involves at least one billing server.

Application Filing Date (1):

19970624

Detailed Description Text (14):

When the customer has made the selection, the server of the service provider sends to the billing server WD, (arrow B) the service identifier "Sid", identifying the movie in question, and the subscriber identifier "Cid" of the customer in question. The Cid is obtained, for example, from the customer's browser on the basis of the source address of the received messages (for example, the socket address of the TCP connection). So the browser is always required to provide the customer identity and address, at least to the billing service provider, but preferably also to the service provider. The subscriber identifier can also be, for example, retrieved from a database on the basis of a password given by the subscriber. This way several different customers can use the services from the same address. It is also possible that there is in the network a separate server, which hides the customer's identity from the service provider, but gives the information to the billing service provider. However, this kind of arrangement is more complicated.

Detailed Description Text (16):

As a result of customer acceptance, the customer terminal returns to the billing server the charging record it received from there. However, the charging record to be returned includes a digital signature (FIG. 3a, arrow D). A digital signature refers to a known encryption algorithm based on a pair of keys. The encryption is done using a private key while anybody can decrypt the message using a public key. The confidentiality of the message is lost in this way, but it makes it sure that the message has come from the correct source. So the sender cannot later deny the fact that he/she has sent the message. When using a digital signature, the entire message is normally not encrypted, only the digest formed from the message. The digest is a sort of check sum. From the encryption point of view, this digest is very strong and an outsider cannot create a message, which would have an identical digest. The digest and the time stamp are encrypted by using the sender's private key and these form the digital signature. There are several different known options for implementing the signature, but as the invention is not related to the signing

of messages, the implementation of signatures is not described in more detail here. Anyone interested in the matter can find more detailed information from several books describing the field. (For example, see Schneier, Applied Cryptography, ISBN 0-471-11709-9, Wiley & Sons, 1996.)

Detailed Description Text (30):

5. Modified contract: This type of CDR is sent from the billing server to the customer and it corresponds to type 0 charging records in other respects, but it does not have a new contract number. The contract number is the same as the number of the short-term contract in use at that moment. This charging record is sent during a service session to notify that the billing parameters have changed. The customer terminal can, for example, accept the new contract automatically, if the price has been decreased; in other cases the customer's acceptance may be required.

Detailed Description Text (71):

When the billing server WD2 receives the customer identifier (Cid), (or the address) and the service identifier Sid from the server S3, it notices that the customer in question is not one of its own. In this case, the billing service providers must make a mutual contract so that the billing server WD2 can send, after receiving the customer and service identifiers from the server S3, the initial CDR (contract CDR) to the billing server WD1. The latter (i.e. WD1) converts the billing server specific information (billing server identifier and contract number) to correspond with its own information and, after this, sends the initial CDR to the customer in question. The contract CDR received from the billing server WD2 is linked to the contract CDR sent to the customer by storing in the billing server WD1 an "empty" CDR, which is otherwise the same as the signed contract CDR received from the billing server WD2, but the service identifier has been replaced by the contract number, which the billing server WD1 uses for identifying the service in question. This way the billing server WD1 knows that the service originates from a service provider, which has a contract with another billing service provider.

Detailed Description Text (78):

FIG. 10 illustrates the payment of a charge in the case that the customer terminals are cable TV network terminals. As a result of making a contract, the billing server gives the customer terminal the first key, which it has received from the server providing the service. The billing server sends periodically a type 3 charging record (pulse) to the customer terminals; in this way it asks for a new payment. As a response to the payment the billing server sends a new key, which it has received from the server providing the service. The key can be sent, for example, in a CDR of separately defined type (type 9), in which it can be placed, encrypted by using the user's public key, to the signature field. The encryption can be implemented when there is a risk that an outsider could copy the key. The key is sent only to those customer terminals from which a payment CDR has been received. The service provider does not need to send one key at a time to the billing server; all keys can be sent together. Also, there is no need to make a separate contract with the customer by using CDRs of type 0. Instead, the sending of the first key can act as a proposal for an on-line contract from the side of the system and the first payment CDR can act as an acceptance of that contract from the side of the customer. After this, the service session is given a contract number.

Detailed Description Text (81):

For example, it is possible that the customer terminal does not send actual charging records to the billing server, but it sends some other messages, which the billing server can use as a basis of generating the charging records. For example, the customer terminal can send so called keep-alive messages as long as the service lasts, after which the billing server generates a charging record in which the duration of the service is the time between the last keep-alive message and the time of accepting the contract. Charging record(s) can also be generated in the

billing server after the customer terminal has notified of the acceptance of the selected service on defined terms.

Detailed Description Text (83):

If the connection between the customer and the billing server is secure enough, it could be unnecessary to include a digital signature in the charging records. Also, sending a separate acceptance message for the online service to the billing server is not necessary as the first payment CDR can act as an acceptance of the on-line service from the part of the customer. So, the only essential factor is that some message notifies the billing server that the customer has accepted the contract.

CLAIMS:

2. A method according to claim 1, wherein negotiating terms of service includes sending a contract message via the network to the customer terminal to notify the customer to make a contract concerning the selected service, and returning a customer's acceptance of the contract as a separate accepting message from the customer terminal via said network to the billing server.

9. A method according to claim 7, wherein the server provides the information transferred with a digital signature, and the billing server identifies the information transferred with a digital signature and received from the customer terminal.

11. A method according to claim 10, further comprising returning, in response to the customer's acceptance of the contract, the received charging record from the customer terminal to the billing server of the network as a digitally signed message.

25. A system according to claim 23, wherein each customer terminal and respectively assigned billing server include interactive elements, whereby

the billing server commands the customer terminal to open a contract window dialog box to present information about a service and an acceptance button for accepting a contract for the service, and

the customer terminal sends, in response to activation of the acceptance button, contract information and a signature to the billing server.

provide for revenue splitting between the telephone company and the called party.

Detail Description Paragraph:

[0395] 900- number equivalent revenue-collecting functionality can be provided by means of a billing gateway server established to manage session setup for revenue-generating calls using specially charged account IDs. The billing servers can allocate a caller's account and credit status, identify the pricing algorithms to be applied for the called server, and maintain an activity record for end-user billing.



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L13: Entry 17 of 38

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DOCUMENT-IDENTIFIER: US 6385726 B1

TITLE: Software license protection via cryptography

Abstract Text (1):

A contents utilizing management apparatus includes a utilizing condition storing unit for storing a utilizing condition corresponding to a sum of money of purchased authorization of contents, a determination unit, coupled to a plurality of computers in which contents are utilized, for determining, based on the utilizing condition of the contents referring to a utilizing request supplied from one of the plurality of computers, whether the contents can be utilized, and a utilizing permission unit for supplying permission to utilize the contents to the one of the plurality of computers when the determination unit determines that the contents can be utilized.

Application Filing Date (1):

19970320

Brief Summary Text (6):

In such a meta-distribution system, each of a number of user computers is provided with a utilizing amount management apparatus. A permissible utilizing amount (an initial value), corresponding to a purchase price of the authorization for use of the contents, is set in the utilizing amount management apparatus apart from the contents supplied to each of the user computers via CD-ROMs, networks and the like. Before the contents are used in a user computer, the user computer refers to the utilizing amount management apparatus for whether the permissible utilizing amount has any existing remainder (any remainder number of utilization times, any remainder of the utilization term and any remainder of the utilizing period of time). If any remainder of the permissible utilizing amount exists, the utilizing amount management apparatus grants utilizing permission to the user computer. After the utilizing permission is granted to the user computer, the contents can be utilized in the user computer. The utilizing amount management apparatus updates the permissible utilizing amount in accordance with an actual utilizing mode such that utilizing permission is granted to the user computer (e.g., one time is subtracted from the permissible number of times of utilization).

Brief Summary Text (7):

On the other hand, if there is no remaining permissible utilizing amount (the remaining utilizing number of times is equal to zero "0", expiration of the permissible utilizing term, or if the remaining utilizing period of time is equal to zero "0"), the utilizing amount management apparatus does not grant utilizing permission to the user computer. The utilization of the contents in the user computer is rejected. In order to further utilize the contents in the user computer, the authorization for use of the contents is purchased and the permissible utilizing amount corresponding to the purchase price is again set in the utilizing amount management apparatus.

Brief Summary Text (13):

The above objects of the present invention are achieved by a contents utilizing management apparatus comprising: utilizing condition storing means for storing a utilizing condition corresponding to a sum of money of purchased authorization of

contents; determination means, coupled to a plurality of computers in which contents are utilized, for determining, based on the utilizing condition of the contents referring to a utilizing request supplied from one of the plurality of computers, whether the contents can be utilized; and utilizing permission means for supplying permission to utilize the contents to the one of the plurality of computers when the determination means determines that the contents can be utilized.

Brief Summary Text (16):

The object of the present invention is achieved by a contents utilizing system comprising: a plurality of computers in which contents are utilized; and a contents utilizing management apparatus, connected to the plurality of computers by a local network and connected to a center computer by a predetermined network, for managing utilization of the contents in each of the plurality of computers based on a utilizing condition corresponding to a sum of money of purchased authorization of the contents, the utilizing condition supplied from the center computer, the contents utilizing management apparatus comprising: utilizing condition storing means for storing the utilizing condition corresponding to the sum of money of the purchased authorization of contents; determination means, coupled to the plurality of computers in which contents are utilized, for determining, based on the utilizing condition of the contents referring to a utilizing request supplied from one of the plurality of computers, whether the contents can be utilized; and utilizing permission means for supplying permission to utilize the contents to the one of the plurality of computers when the determination means determines that the contents can be utilized.

Detailed Description Text (9):

On the other hand, if the present condition for the contents satisfies the utilizing condition, the accounting server 200 transmits utilizing permission information to the user computer 100. For example, a deciphering key for the ciphered contents requested by the user computer 100 is supplied as the utilizing permission information to the user computer 100 in response to the utilizing request. The user computer 100 deciphers, using the deciphering key, the contents which are separately supplied by the CD-ROM and performs a process using the deciphered contents.

Detailed Description Text (14):

The LAN unit 18 performs communication between the accounting server 200 and each of the user computers 100(1), 100(2), . . . and 100(n) via the local network. Receiving information (e.g., a utilizing request) from a user computer 100(i) is supplied from the LAN unit 18 to the CPU 10 via an interface 19. Transmitting information (e.g., utilizing permission/denial information) supplied from the CPU 10 via the interface 19 is transmitted from the LAN unit 18 to a predetermined user computer 100(i).

Detailed Description Text (15):

The accounting server 200 has functions, as shown in FIG. 4, regarding the contents utilizing management. Referring to FIG. 4, the accounting server 200 has a utilizing request processing unit 210, a utilizing condition setting unit 220 and a storage unit 250. The utilizing request processing unit 210 determines whether contents, by referring to utilizing requests from the respective user computers, can be utilized. The determination results (the utilizing permission/denial information) are returned from the utilizing request processing unit 210 to the respective user computers. The utilizing condition setting unit 220 supplies to the center computer 300 setting requests for utilizing conditions. The utilizing conditions transmitted in response to the setting requests by the center computer 300 are received by the utilizing condition setting unit 220. The utilizing conditions received from the center computer 300 for the respective contents are stored in the storage unit 250.

Detailed Description Text (26):

Referring to FIG. 7, the utilizing request processing unit 210 has a utilizing request receiving unit 211, an account processing unit 212, a decipher processing unit 213, and a utilizing permission transmitting unit 214. The utilizing request receiving unit 211 corresponds to a receiving function of the LAN unit 18 shown in FIG. 3. The utilizing request receiving unit 211 receives utilizing requests for the contents from the respective user computers. The account processing unit 212 is formed of a utilizing condition checking block 212a and a utilizing condition updating block 212b. The utilizing condition checking block 212a and the utilizing condition updating block 212b correspond to functions of the CPU 10 which operate in accordance with the programs of the contents utilizing management. The utilizing condition checking block 212a checks, based on the utilizing condition of the contents (see FIG. 6) stored in the storage unit 250 (corresponding to the disc unit 16 shown in FIG. 3), whether the contents referring to the received utilizing request can be utilized now. When the utilizing condition checking block 212a determines that the contents referring to the received utilizing request can be utilized, the utilizing condition updating block 212b updates the utilizing condition stored in the storage unit 250 so that a utilizing amount for this time is subtracted from the permissible utilizing amount based on the utilizing condition. For example, in a case where a permissible utilizing amount of times is defined as the utilizing condition, the permissible utilizing amount of time is decreased by one.

Detailed Description Text (27):

The decipher processing unit 213 corresponds to the decipher processing circuit 13 shown in FIG. 3. The decipher processing unit 213 deciphers, using a corresponding contents key (see FIG. 6), the contents which are determined to be able to be utilized by the utilizing condition checking block 212a. The utilizing permission transmitting unit 214 corresponds to the transmission function of the LAN unit 18 shown in FIG. 3. The utilizing permission transmitting unit 214 transmits a response corresponding to the checking result obtained by the utilizing condition checking block 212a, to a user computer from which the utilizing request has been received by the accounting server 200. When the utilizing condition checking block 212a determines that the contents referring to the utilizing request can not be utilized, the utilizing permission transmitting unit 214 transmits information of the non-permissible utilization to the user's computer. On the other hand, when the utilizing condition checking block 212a determines that the contents referring to the utilizing request can be utilized, the utilizing permission transmitting unit 214 transmits the contents which are deciphered by the decipher processing unit 213 to the user computer.

Detailed Description Text (34):

After this, the CPU 10 provides a key used to decipher the contents which have been permitted to be utilized from the table (see FIG. 6) stored in the disc unit 16 (S25). The key is supplied to the decipher processing circuit 13 (the decipher processing unit 213). The decipher processing circuit 13 deciphers the ciphered contents using the key supplied thereto (S26). Based on instructions from the CPU 10, the LAN unit 18 then transmits the deciphered contents and information of the utilizing permission to the user computer from which the utilizing request has been received.

Detailed Description Text (35):

After transmitting the ciphered contents and the utilizing request to the accounting server 200 (S01), the user computer is in a waiting state. After this, the user computer receives the response to the utilizing request from the accounting server 200 (S02). The user computer determines whether the response corresponds to the utilizing permission or the utilizing nonpermission (S03). If the response corresponds to the utilizing permission, the contents (which have been deciphered) and the response information transmitted from the accounting server 200 are loaded in the user computer. After this, the contents (an application) are